REMARKS

Claims 11-21 were previously pending in the application. By the Amendment, new claims 22-24 are added, and claims 11-21 remain unchanged. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

The claims stand rejected under the cited prior art of record. Specifically, claims 11, 15-18 and 20 were rejected under 35 USC §102(b) as being anticipated by Tilmanis (U.S. Patent No. 3,839,878). Claim 12 was rejected under 35 USC §103(a) as being unpatentable over Tilmanis in view of Howland (U.S. Patent No. 3,726,104), and claims 13 and 21 were rejected under 35 U.S.C. §103(a) as being unpatentable over Tilmanis in view of Howland and Berrett et al. (U.S. Patent No. 3,716,096). Additionally, claim 14 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tilmanis in view of Pao (U.S. Patent No. 4,736,594), and claim 19 was rejected under 35 U.S.C. §103(a) as being unpatentable over Tilmanis in view of Harbour (U.S. Patent No. 3,249,894).

Independent Claims

Independent claim 11 defines a refrigeration device including a thermally insulated housing enclosing an inner chamber and an air passage separate from and communicating with the inner chamber. An evaporator is arranged in the air passage. A heating device is provided for heating the evaporator, and a control circuit is provided for controlling operation of the heating device. A measuring device is arranged in the air passage to provide a measured signal representative of air flow through the air passage. The control circuit activates the heating device when the air flow falls below a predetermined threshold value.

Independent claim 20 defines a method for controlling the defrosting of an evaporator in a refrigeration device. The refrigeration device includes a thermally insulating housing enclosing an inner chamber and enclosing an evaporator arranged in an air passage separated from and communicating with the inner

chamber. The refrigeration device also includes a heating device for heating the evaporator and a control circuit for controlling the operation of the heating device. The method includes the steps of estimating an air flow through the air passage in which the evaporator is arranged, and triggering a defrosting process when the estimated air flow falls below a predetermined threshold value.

Claim 21 recites a refrigeration device including a thermally insulated housing enclosing an inner chamber and including an air passage separated from and communicating with the inner chamber. An evaporator is arranged in the air passage, and a heating device is provided for heating the evaporator. A control circuit controls operation of the heating device. A measuring device is disposed in the air passage and is directly displaceable by air flow through the air passage. The control circuit communicates with the measuring device and activates the heating device when the air flow through the air passage falls below a predetermined threshold value.

With regard to claims 11, 15-18 and 20, the Office Action contends that the temperature sensors in Tilmanis constitute "a measuring device arranged in the air passage to provide a measured signal representative of the air flow through the air passage." This contention was specifically addressed in the Amendment filed May 22, 2009 (entered May 27, 2009). As discussed therein, Tilmanis discloses an automatic defrosting system for refrigerators and the like. The system includes two thermistors 36, 38 that serve as temperature sensors. In this manner, the system senses the temperature of the evaporator coil (via thermistor 36) and the temperature of a storage space of the refrigerator (via thermistor 38) and automatically initiates operation of the defrost apparatus when the difference between the two temperatures exceeds a predetermined value. Tilmanis describes that as frost builds up on the evaporator coil, it exercises a progressively increasing insulating effect, so that eventually the rate of heat inflow to the storage space exceeds the rate at which heat is extracted therefrom by the evaporator. It is clear then from the express teachings in Tilmanis that the

Tilmanis structure monitors *temperatures* to determine whether a defrost operation should be initiated. In contrast, claim 11 defines a measuring device arranged in the air passage that provides a measured signal representative of air flow through the air passage. Nowhere does Tilmanis remotely disclose that the thermistors 36, 38 provide a signal representative of air flow through the air passage or are even capable of providing such a signal. For at least this reason, Applicants respectfully submit that the rejection is misplaced.

In addition, claim 11 recites that the measuring device is arranged in said air passage. Tilmanis, in contrast, discloses that at least one of the thermistors 36, 38 (thermistor 38 as shown) is arranged within the food storage chamber 12. The Office Action's contention that the temperature sensors constitute a measuring device "arranged in the air passage" amounts to a mischaracterization of the Tilmanis structure. As shown in the drawings, even assuming the contentions with regard to the temperature sensors are somehow viable, the second thermistor 38 is positioned in the food storage chamber 12. Since anticipation under 35 U.S.C. §102(b) requires each and every feature of the claimed invention to be disclosed in a single prior art reference, and since at least this feature is also lacking in Tilmanis, Applicants submit that for this reason also, the rejection of independent claim 11 is misplaced.

With regard to dependent claims 15-18, Applicants submit that these claims are allowable at least by virtue of their dependency on an allowable independent claim. Additionally, claim 15 recites that the measuring device includes two temperature sensors which are thermally differently closely coupled to at least one of a heat source and a sink and the air in said passage indicative of air flow speed. Claim 16 recites that the heat sink is the evaporator. The thermistors 36, 38 in Tilmanis, in contrast, are respectively disposed in contact with the evaporator and in the storage chamber. This point was also raised in the May 27 Amendment, and the Office Action does not address or even

acknowledge the prior Remarks. Indeed, since this subject matter is also lacking in Tilmanis, Applicants submit that these dependent claims are allowable.

Independent claim 20 defines a method for controlling the defrosting of an evaporator in a refrigeration device. The method includes a step of estimating an air flow through said air passage in which said evaporator is arranged. Nowhere does the Tilmanis patent even remotely disclose a step of estimating an air flow through an air passage in which its evaporator is arranged. Rather, as noted above, Tilmanis discloses the use of thermistors 36, 38 to measure a difference in the temperatures between the evaporator coil and the storage space. The Examiner contends that Tilmanis discloses "a monitoring and control circuit which estimates an air flow through the air passage in which the evaporator is arranged by determining the difference between the temperature values detected by a pair of temperature sensors." This also is a clear mischaracterization of the Tilmanis patent. As noted, Tilmanis is unconcerned with detecting or estimating air flow through the air passage. Even if the thermistors in Tilmanis are somehow *capable* of performing this physical step, which Applicants do not believe nor concede, Tilmanis lacks even a remote teaching of performing the claimed estimating step.

Since at least this step is missing in the Tilmanis patent, Applicants submit that the rejection of independent claim 20 is also misplaced.

Reconsideration and withdrawal of the rejection are respectfully requested.

With regard to claim 12, the Examiner recognizes that Tilmanis lacks the claimed measuring device including a body driven to move by the air flow in the passage and a sensor to record the movement of the body indicative of air flow speed . . . . The Office Action contends, however, that Howland discloses this subject matter. Applicants respectfully disagree.

Howland discloses a refrigeration system including an evaporator coil 10. Air to be cooled by the refrigeration system is blown by a blower fan 13 through

the evaporator coil 10. A rotatable impeller 15 is positioned in an opening 14 on one side of the evaporator coil 10. The impeller 15 drives a clock timer gear train 16, which after a certain number of rotations by the impeller 15 activates a defrost initiation signal switch 17. Although a speed of the impeller 15 varies based on air flow through the evaporator coil 10, the impeller 15 does not amount to a sensor "to record the movement of said body indicative of air flow speed." To the contrary, as noted, the impeller 15 merely drives a clock timer gear train 16. Moreover, Applicants submit that claim 12 is allowable at least by virtue of its dependency on an allowable independent claim. Withdrawal of the rejection is requested.

With regard to the rejection of claims 13 and 21, Applicants submit that claim 13 is allowable at least by virtue of its dependency on an allowable independent claim. That is, the Howland and Berrett patents do not correct the noted deficiencies with regard to Tilmanis. Moreover, claim 13 recites that the measuring device includes an elastic element that can be deflected from a rest position by the air flow in the passage and a sensor to record the deflection of the element indicative of air flow speed . . . . The Berrett patent, however, merely describes a flow sensor 32 that is responsive to air flow through an air duct to close a switch when a predetermined air flow exists. The flow sensor thus serves only to close the switch (and possibly to open the switch) as a consequence of a fixed air flow. The measuring device defined in claim 13, to the contrary, includes the elastic element and a sensor that records the deflection of the elastic element indicative of air flow speed. The sensor thus determines an air flow speed based on a deflection amount of the elastic element. Applicants submit that this structure is distinguishable from the "sail" switch 32 described in Berrett.

Applicants submit that claim 21 is allowable for similar reasons. In addition, with reference to the discussion above concerning claim 11, claim 21 recites that the measuring device is disposed in said air passage. As discussed

above, this subject matter is lacking in Tilmanis, and neither Howland nor Berrett provides a suitable teaching that would lead those of ordinary skill in the art to modify the Tilmanis structure to meet this feature of the invention.

With regard to claim 14, Applicants submit that this claim is allowable at least by virtue of its dependency on an allowable independent claim. That is, the Pao patent does not correct the deficiencies noted with regard to Tilmanis and claim 11. In addition, the Office Action recognizes that Tilmanis lacks the claimed measuring device including a pressure sensor to measure a dynamic air pressure in the passage indicative of air flow speed. The Office Action contends that Pao discloses the use of a pressure sensor "to determine air flow across the evaporator coil." Applicants respectfully submit that this contention is a mischaracterization of the Pao patent. Pao in fact specifically describes that the defrosting process "is initiated by pressure switch 18 which senses a drop in the pressure across the coil when compared to a reference fan pressure performance curve." See, for example, col. 4, lines 16-27. Contrary to the Examiner's contentions in the Office Action, sensing a drop in pressure falls short of the claimed subject matter wherein a pressure sensor measures a dynamic air pressure in the passage indicative of air flow speed. Withdrawal of the rejection is requested.

Claim 19 recites that one of the temperature sensors in the embodiment utilizing temperature sensors to determine air flow is arranged on an output of the air passage. In this context, the Examiner contends that it would have been obvious to move the second thermistor 38 in Tilmanis to the outlet of the evaporator passage. Applicants submit that the proposed modification is not suggested in Tilmanis. Tilmanis specifically discloses that the second thermistor 38 is arranged within the frozen food storage chamber 12. The placement of the second thermistor is not arbitrary. Tilmanis describes as an object of the invention to periodically sense the temperature of the evaporator coil and the temperature of a storage space of the refrigerator. Tilmanis initiates the

operation of the defrost apparatus when the difference between these two temperatures exceeds a predetermined value. The modification proposed in the Office Action thus directly contrasts an express objective of the Tilmanis patent. Additionally, changing a position of the thermistor 38 would require circuit modifications and programming modifications, which are neither disclosed nor suggested in Tilmanis. Applicants thus respectfully submit that the rejection is misplaced. Moreover, Applicants submit that this dependent claim is allowable at least by virtue of its dependency on an allowable independent claim. Withdrawal of the rejection is requested.

New Claims

Claims 22-24 have been added, each of which is dependent on claim 21. Claim 22 recites that the measuring device comprises a wind wheel, claim 23 recites that the measuring device is a flexible lamella, and claim 24 defines the structure wherein the measuring device is a pressure sensor. Support for these features of the invention can be found in the specification at, for example, page 6, line 22 - page 8, line 16. Applicants submit that the subject matter of these claims is also lacking in the references of record.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of Claims 11-24 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

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